

## WELD-SOLDER FILLER

This application is a continuation-in-part application of Serial No. 09/608 850, filed June 30, 2000.

## FIELD OF THE INVENTION

The invention relates to a filler with copper, aluminum and manganese for soldering and/or welding.

## BACKGROUND OF THE INVENTION

Such fillers are known from the state of the art and are also standardized in the DIN 1733, Part 1. Fillers must be chosen in such a manner that strength values of the solder-weld connection reach at least the guaranteed performance values or standard values of the base material. Sufficient deforming ability of the welding material is particularly of importance when the base material has a low suitability for welding. Particular problems exist thereby in the MIG soldering of tinned or aluminized thin sheet metals or, however, the MIG soldering or rust-free steel plates. Also problematic is often the build-up weld material.

When welding thin sheet metal a distortion of the sheet metal occurred up to now because the heat penetration through the sheet metal was too high. A further problem is often the lack of flow and wetting behavior of the material and weld filler. A uniform bath is then not created between the two pieces to be welded, which bath guarantees a permanent connection.

## SUMMARY OF THE INVENTION

The purpose of the invention is therefore to provide a filler, which is suited for welding, however, in particular also with an impulse arc through the MIG soldering to connect coated sheet metal plates and rust-free steels, for example 1.4301 and similar ones, and

guarantees besides a low energy input and thus a low structural part distortion, a good flow and wetting behavior, a good gap bridging and a strong seam. Furthermore, the weld-solder filler has a good corrosion resistance and permits fast joining speeds.

#### DETAILED DESCRIPTION

This purpose is attained according to the invention in such a manner that the filler contains in percentage by weight 0.5 to 7.0% Al, 0.5 to 8.0% Mn, the usual impurities less than or equal to 1.0% and the remainder Cu.

In contrast to the fillers known from the state of the art, the above set forth filler has an adapted melting point, which results in a low heat input and thus also in a low amount of distortion of the welded pieces. Thus the filler is suited in particular for thin sheet metal plates and also for rust-free steels, like 1.4301 DIN 17440 of less than 4.0 mm and even less than 1.5 mm thickness. The good flow and wetting behavior results in a uniform flat seam, which is essentially free of pores. The filler itself is well drawable and can therefore be prepared as a small diameter wire of, for example, 0.8 mm.

The filler in addition contains advantageously in percentage by weight 0.01 to 4.0% iron and/or 0.01 to 6.0% nickel. Usual impurities are each to be no higher than 0.01 to 0.3% silicon, 0.01 to 1.0% zinc, 0.01 to 0.5% tin, 0.01 to 0.1% chromium and 0.01 to 0.1% cobalt.

A further advantageous filler contains 5 percent by weight aluminum and 2 percent by weight manganese.

Whereas a further advantageous filler contains according to the invention 2 percent by weight aluminum and 6 percent by weight manganese.

A third advantageous filler has 6 percent by weight aluminum, 1 percent by weight manganese, and 1 percent by weight nickel.

A fourth advantageous filler has 5% Al, 1% Mn and 1% Ni.